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ABSTRACT

This is the second in a series of early estimates for private elementary and secondary education in the United States reported by the National Center for Education Statistics. These estimates are key statistics reported early in the school year and include the numbers of teachers and students in private elementary and secondary schools and the number of high school graduates. These estimates are based on a national probability sample of private schools surveyed in the fall of 1989. Basic data are collected through the ongoing Schools and Staffing Survey and a Private School Universe data collection system currently under development as an ongoing data system. Early in October 1989, questionnaires were mailed to a national probability sample of 1,169 private elementary and secondary schools from a universe of 27,000 schools. A total of 127 of these schools were subsequently determined to be out of scope. The overall response rate after telephone follow-up was 95% (986 of the 1,042 eligible schools). Comparable estimates for public school teachers, students, and graduates are collected through a survey of state education agencies. These early estimates are preliminary data to be used prior to the release of the 1989-90 final estimates in late 1990. Four data tables are included. (TJH)

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NATIONAL CENTER FOR EDUCATION STATISTICS

Survey Report

December 1989

Early Estimates

Key Statistics for Private Elementary and Secondary Education: School Year 1989-90

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This is the second in a series of early estimates for private elementary and secondary education in the United States reported by the National Center for Education Statistics (NCES). These early estimates are key statistics reported early in the school year and include the numbers of teachers, students, and high school graduates for private elementary and secondary schools. These estimates are based on a national probability sample of private schools surveyed in the fall of 1989. Comparable estimates for public school teachers, students, and graduates are collected through a survey of State education agencies ("Key Statistics for Public Elementary and Secondary Education: School Year 1989-90," Early Estimates, publication number NCES 90-032). These early estimates are preliminary data to be used prior to the release of the 1989-90 final estimates in late 1990.

Highlights

- There were approximately 46.0 million students in membership in the Nation's elementary and secondary schools in the fall of 1989. Some 5.4 million of these students attend private schools, compared with 40.6 million students who attend public schools. Our Nation's students are taught by approximately 2.7 million teachers; 377,000 of these educators work in a private school setting, while 2.4 million teach public school students. An estimated 2.8 million students graduated from high school in the 1988-89 school year; 324,000 of these graduates were from private schools and 2.5 million from public schools. An additional 2.7 million students are expected to graduate from high school in the 1989-90 school year; 281,000 of these anticipated graduates are private school students, compared with 2.4 million who are public school students (table 1).
- For comparability with student membership in public schools and with previous NCES estimates of student membership in private schools, the 399,000 students in private prekindergarten and nursery schools that have a first grade or higher were included in the early estimate of 5.4 million private school students. In order to estimate the number of students in elementary and secondary schools, defined as grades kindergarten through 12, these 399,000 students are removed from the estimate to yield an estimate of 5.0 million elementary and secondary private school students (table 2).
- The largest number of private school students are enrolled in Catholic schools, with a total student membership of about 2.6 million, compared with an estimate of 1.7 million students in membership in other religious schools and an estimate of 713,000 students in membership in nonsectarian schools (table 2).
- Of the estimated 342,000 private school teachers of students in grades kindergarten through 12, some 142,000 teach in Catholic schools, compared with 123,000 in other religious schools and 77,000 in nonsectarian schools (table 2).
- When all private schools are considered as a group, there are approximately 14.5 pupils per teacher. The mean number of pupils to teachers is 18.1 in Catholic schools, 13.5 in other religious schools, and 9.3 in nonsectarian schools (table 2).

- The majority of private school students are enrolled at the elementary level, with an estimated 2.7 million private school students in elementary schools, compared with estimates of 817,000 students in secondary schools and 1.4 million students in combined schools (table 2).
- The largest number of private school teachers are teaching in elementary schools, approximately 156,000, compared with estimates of 63,000 teachers in secondary schools and 123,000 teachers in combined schools (table 2).
- The mean pupil-to-teacher ratio for private schools varies by school level, with a ratio of 17.4 in elementary schools, 12.9 in secondary schools, and 11.6 in combined schools (table 2).
- The majority of private high school graduates are from Catholic schools, with estimates of 182,000 graduates in 1988-89 and 155,000 graduates in 1989-90, compared with approximately 88,000 graduates from other religious schools in 1988-89 and approximately 54,000 graduates from nonsectarian schools in 1988-89 (table 3).

The Early Estimate System

The basic statistical information for private schools is collected through two mechanisms: the ongoing Schools and Staffing Survey (SASS) and a Private School Universe data collection system currently under development as an ongoing data system. These private school Early Estimates are one reporting component of the Private School Universe data collection system. The basic statistical information included in this data system are collected from all private schools in the NCES universe, and the Early Estimates are based on a subsample of that universe.

The Early Estimates System is currently under development and is designed to allow NCES to report selected key statistics early in the school year. Over the course of the next several years, NCES will be examining and evaluating various methodologies to obtain and improve the Early Estimate System for elementary and secondary education.

Methodology

Early in October 1989, questionnaires were mailed to a national probability sample of 1,169 private elementary and secondary schools from a universe of approximately 27,000 private schools. Telephone followup of nonrespondents was initiated in late October, and data collection was completed in late November. The overall response rate was 95 percent: 986 of the 1,042 eligible schools. Some 127 of the original 1,169 schools in the sample were determined to be out-of-scope. While this survey was not designed specifically to yield an estimate of the number of private schools, the number of out-of-scope schools identified in this survey resulted in a weighted estimate of approximately 26,645 private schools.

The sampling frame used for the survey is composed of two non-overlapping frames: the NCES list frame of approximately 24,000 eligible schools, and an area frame developed by the Census Bureau for 75 Primary Sampling Units (PSUs). The area frame yielded a sample size of 523 schools for the Schools and Staffing Survey (SASS). The private school early estimates area sample was drawn from the SASS area sample. The sample from the area frame was stratified by level of school (elementary, secondary, and other), and religious orientation (Catholic, other religious, and nonsectarian). Within strata, schools were further sorted by FIPS (Federal Information Processing Standards) State code, by FIPS county code within States, and by student membership within counties, and samples were selected with probabilities proportionate to size from each stratum. The measure of size used for this purpose was the square root of student membership multiplied by the inverse of the probability of selection of the PSU in which the school is located.

The sample from the list frame was stratified by level of school (elementary, secondary, combined, and other) and religious orientation (Catholic, other religious, and nonsectarian), and within strata, schools were further sorted by Census region, and by student membership size within region. Each school in the sorted frame was assigned a sampling measure of size equal to the square root of student membership. The sample design for the list frame was similar, differing in two ways from the design for the area frame. First, stratification by level of school yielded four, rather than three categories: elementary, secondary, combined, and other. Second, the measure of size was simply the square root of student membership.

The survey data were weighted to reflect the sampling rates (probability of selection) and were adjusted for nonresponse. Numbers in the tables and text have been rounded. Ratios have been calculated on the actual estimates rather than the rounded values.

The standard error is a measure of the variability due to sampling when estimating a statistic. It indicates how much variance there is in the population of possible estimates of a parameter for a given sample size. Standard errors can be used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is a 95 percent confidence interval. For example, for the ratio of pupils to teachers in 1989-90, the estimate for all private schools is 14.5 and the standard error is 0.1. The 95 percent confidence interval for this statistic extends from $14.5 - (0.1 \text{ times } 1.96)$ to $14.5 + (0.1 \text{ times } 1.96)$ or from 14.3 to 14.7. The standard error for the 4,955,771 students in private schools is 117,830.9. The 95 percent confidence interval for this statistic extends from 4,724,823 to 5,186,720.

Estimates of standard errors were computed using a variance estimation procedure for complex sample survey data known as balanced repeated replication. Table 4 presents standard errors for some key statistics for private schools.

Comparisons of the NCES private school estimates from 1989-90 with those from 1988-89 show similarities in the estimates for the number of private school students, teachers, and graduates (from the previous school year) in the aggregate, as well as within each school level and religious orientation group. For example, the confidence interval on the 1988-89 estimate of 4,873,431 students ranged from 4,683,742 to 5,063,120 and the confidence interval of the 1989-90 estimate of 4,955,771 ranges from 4,724,823 to 5,186,720. Similarly the confidence interval on the 1988-89 estimate of 344,659 teachers ranged from 329,715 to 359,603 and the confidence interval on the 1989-90 estimate of 342,715 ranges from 325,357 to 359,211.

A comparison of the NCES early estimate for the total number of students in private schools with the most recent sample survey estimate of total enrollment from the October Supplement of the Current Population Survey (CPS) shows that the two estimates are different ("School Enrollment - Social and Economic Characteristics of Students: October 1988" Current Population Reports, Series P-20, U.S. Department of Commerce, forthcoming). In particular, the CPS estimate of the number of private school students in grades kindergarten through 12 in the 1988-89 school year is 4.31 million, compared with the 4.96 million students reported in the NCES 1989-90 early estimates. (The confidence interval on the CPS estimate ranges from 4.11 to 4.52 million and the confidence interval of the early estimates membership count ranges from 4.72 to 5.19 million.)

Comparisons of NCES early estimates for Catholic schools with the National Catholic Educational Association (NCEA) universe data for the 1988-89 school year show similarities in these two independent data sources ("U.S. Catholic Elementary and Secondary Schools, 1988-89," National Catholic Educational Association, 1989). Specifically, the NCEA 1988-89 school year counts of 2,551,000 students and 163,963 for high school graduates are within sampling error of the NCES 1989-90 early estimates for Catholic schools (the confidence interval on the NCES early estimate of Catholic school student membership ranges from 2,465,088 to 2,694,680 and the confidence interval on the NCES early estimate of 1988-89 Catholic high school graduates ranges from 162,462 to 201,490). The NCEA teacher count of 137,700 is based solely on full-time teachers, while the estimate reported here (142,492 teachers) includes part-time teachers in the computation of full-time equivalents; despite this definitional difference, the two values are similar (the confidence interval of the NCES estimate ranges from 135,325 to 149,659).

In contrast, the definitional difference in the number of teachers may impact on the pupil-to-teacher ratio. In fact, the pupil-to-teacher ratio is different in the two reports. The NCEA 1988-89 school year ratio of 18.5 for the pupil-to-teacher ratio is different from the NCES 1989-90 early estimate of 18.1 for Catholic schools (the confidence interval on the NCES pupil-to-teacher ratio in Catholic schools ranges from 17.9 to 18.3).

Survey estimates are also subject to errors of reporting and errors made in the collection of the data. These errors, called nonsampling errors, can sometimes bias the data. While general sampling theory can be

used to estimate the sampling variability of an estimate, nonsampling errors are not easy to measure and usually require either an experiment to be conducted as part of the data collection procedure or use of data external to the study.

Nonsampling errors may include such things as differences in the respondents' interpretation of the meaning of the questions, differences related to the particular time the survey was conducted, or errors in data preparation. The survey instrument used in the 1989-90 Early Estimates data collection was developed based on the experiences of the 1988-89 Early Estimates data collection. The form was modified as needed to accommodate one data collection instrument for both the Early Estimates and Universe components of the Private School data collection system. The content of the survey was developed in consultation with representatives of private school associations attending NCES private school data users meetings. The questionnaire and instructions were extensively reviewed by NCES staff. Manual and machine editing of the questionnaires was conducted to check the data for accuracy and consistency. Data were keyed with 100 percent verification.

Undercoverage in the list and area frames is another possible source of nonsampling error. The area frame was used to complement the list frame through the identification of schools missing from the list frame. As the Early Estimates System and the Private School Universe data collection system develop, both the list and area frames will be updated periodically. For the 1989-90 Early Estimates data collection, 1,000 private schools were added to the Universe list.

The survey was performed under contract with the U.S. Department of Commerce, Bureau of the Census. The Census Project Director was Sarah Doherty, and the Survey Manager was Renee Jefferson-Copeland. Elizabeth Gerald was the NCES Project Officer. The data requester, who participated in the questionnaire development and survey design, was Marilyn Miles McMillen, the NCES Chief Analyst for Private Schools.

For information about the Private School Universe data collection system, contact Elizabeth Gerald, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue NW, Washington, DC 20208-5730, telephone (202) 357-6334.

Definitions

Membership is the unduplicated count of students on the roll of the school on the school day closest to October 1.

Elementary schools are composed of students in grades kindergarten through six, students in grades seven and eight when the remainder of the students in the school are in the lower grades or are ungraded, and students in ungraded classes in schools with no grade higher than the eighth grade.

Secondary schools are composed of students in grades nine through 12, students in grades seven and eight when the remainder of the students in the school are in the higher grades or are ungraded, and students in ungraded classes in schools with no grade lower than grade seven.

Combined schools are composed of students in grades that range below grade six and above grade eight, or of students that are all in ungraded classes.

Teachers are defined in terms of full-time equivalents. Thus, the estimated count of teachers represents the aggregate total of full- and part-time teachers.

Pupil-to-teacher ratio is the number of students divided by the number of teachers within each religious orientation group and education level.

Graduates are defined as students receiving a regular high school diploma during the school year, including summer graduates. Early Estimates are provided for the recent graduates from the 1988-89 school year, with projections for the 1989-90 school year.

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Table 1.—Early estimates of key statistics for public and private schools for grade levels pre-K through 12: United States, school year 1989-90

Type of school	Students 1989-90	Teachers 1989-90	Graduates	
			1988-89	1989-90
All schools	45,963,096	2,737,252	2,819,933	2,679,919
Private schools	5,354,754	377,311	323,968	281,230
Public schools*	40,608,342	2,359,941	2,495,965	2,398,689

*Derived from "Key Statistics for Public Elementary and Secondary Education: School Year 1989-90," Early Estimates, publication number NCES 90-032.

Table 2.—Number of private school students, teachers, and pupil/teacher ratio, by religious orientation and school level for grade levels K through 12: United States, school year 1989-90

Characteristic	Students 1989-90	Teachers 1989-90	Pupil/teacher ratio 1989-90
Total	4,955,771	342,284	14.5
Religious orientation			
Catholic	2,579,884	142,492	18.1
Other religious	1,663,310	123,253	13.5
Nonsectarian	712,577	76,539	9.3
School level			
Elementary	2,713,939	155,692	17.4
Secondary	817,302	63,281	12.9
Combined	1,424,530	123,311	11.6

Table 3.—Number of private high school graduates, by religious orientation: United States, school years 1988-89 and 1989-90

Characteristic	Early estimate 1988-89	Estimated 1989-90
Total	323,968	281,230
Religious orientation		
Catholic	181,976	155,383
Other religious	87,855	82,166
Nonsectarian	54,137	43,681
School level		
Secondary	213,283	188,494
Combined	110,685	92,736

Table 4.—Selected standard errors for private school early estimates for grade levels K through 12: United States, school years 1988-89 and 1989-90

Characteristic	Students 1989-90	Teachers 1989-90	Pupil/Teacher ratio 1989-90	Graduates	
				1988-89	1989-90
Total	117,830.9	8,636.1	0.1	13,305.6	10,530.2
Religious orientation					
Catholic	58,569.5	3,656.6	0.1	9,956.0	7,697.5
Other religious	88,321.4	5,035.6	0.3	8,449.2	7,428.9
Nonsectarian	51,507.8	5,987.8	0.1	6,839.1	4,579.4
School level					
Elementary	75,128.0	5,183.5	0.1	—	—
Secondary	35,790.6	2,858.5	0.1	9,069.0	6,866.9
Combined	114,972.5	7,865.2	0.3	12,302.2	9,346.4

—Not applicable.